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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/612,770 | 07/01/2003 | James E. Brewer | A03P1047 | 4998 |

36802 7590 10/02/2008

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| EXAMINER | |
|---|---|
| GEDEON, BRIAN T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3766 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 10/02/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/612,770 | BREWER ET AL. | |
| | Examiner | Art Unit | |
| | Brian T. Gedeon | 3766 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 July 2008 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7 and 10-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Burnes et al. (US 2003/0204212).

In regard to claims 1, 3, 5, 6, and 15-22, Burnes et al. disclose multichamber cardiac stimulation system using a implantable case 30, with a plurality of leads 32, 34, 36, 38, containing electrodes, located in the heart, figure 1. Figure 2B shows a signal generator 52, impedance sensing detector 56, stimulation electrodes 53 and 54, and impedance sensing electrodes 57 and 58. In view of figure 2B, stimulation electrodes 53 and 54 are located on the right side of the heart, and impedance sensing electrode

57 and 58 are located on the left side, implying that an electrical signal is delivered to a first position (i.e., in a right chamber) and sensing a potential at a second position (i.e., a left side). Both the first and second positions are located in or adjacent to one of the cardiac chambers or in a blood vessel (e.g., coronary sinus or cardiac vein), para 0044. Burnes et al. measures impedance, but in view of the fact that impedance is the ratio between voltage potential and current and of the teachings regarding impedance sensing of Burnes et al., the Examiner takes the position sensing potentials would be obvious to one of ordinary skill in the art. Burnes et al. teach that it is known to use impedance sensors in pacing systems, wherein a plurality of pace/sense electrodes placed in respective locations so that different impedance measurements can be made. Impedance is measured by delivering a current from a electrode (source or anode) such that the current is conducted through some region of the heart, and then measuring voltage (potential) differential at a second electrode (recording OR cathode) arising from the conduction of the current through the tissue, para 0010. The Examiner interprets this as applying an electrical signal (i.e., a current pulse) in a first position, then measuring the potential in a second location. Burnes et al. also teach that impedance measurements are taken across the heart at certain cardiac cycle times as a measure of chamber expansion or contraction, which the Examiner interprets as being parameters related to cardiac geometry, para 0012; impedance measurement are associated with cardiac geometry since Burnes et al. teach that maximum impedance is indicative of minimum cardiac volume, para 0018. Burnes et al. substantially describe the invention as claimed, but do not explicitly teach that knowledge of the measured

impedance can be used to ascertain information pertaining to the distance between the electrodes. Burnes et al. do however provide teaching that the impedance values are greatly effected by the distance between the electrodes, which can be effected by breathing, para 0022 and 0083. Thus changes in impedance can indicate a change in the inter-electrode distance, and may be used to calculate a distance value. In view of this teaching, one of ordinary skill in the art would be motivated at the time the invention was made to ascertain information pertaining to the inter-electrode distance since changes in electrode distance can disrupt the reliability of the measured impedance values.

In regard to claims 2, 7, 19, and 22, the system of Burnes et al. can be employed in a unipolar configuration in which the pacemaker case is used as an electrode, para 0049.

In regard to claim 4, the heart is stimulated by a ring electrode, para 0046.

In regard to claims 10-12, impedance measurement are associated with cardiac geometry since Burnes et al. teach that maximum impedance is indicative of minimum cardiac volume, para 0018. Further, impedance measurements are taken across the heart at certain cardiac cycle times as a measure of chamber expansion or contraction, which the Examiner interprets as being parameters related to cardiac geometry, para 0012.

In regard to claim 13, the contraction and volume parameters detected by Burnes et al. are indicative of congestive heart failure, para 0002-0003.

In regard to claim 14, Burnes et al. apply a cardiac resynchronization therapy, para 0012.

4. Claims 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burnes et al. (US 2003/0204212) in view of Digby (US Patent no. 4,173,230).

In regard to claims 8 and 9, Burnes et al. substantially describe the invention as claimed except do not teach sensing or pacing during the refractory period. Digby teaches that sensing and pacing can occur during a refractory period, col 4 lines 1-10. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to sense and pace during the refractory period in order to artificially extend it.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Gedeon whose telephone number is (571) 272-3447. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl H. Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl H. Layno/
Supervisory Patent Examiner, Art Unit 3766

Carl H. Layno
Examiner
Art Unit 3766

/B. T. G./
Examiner, Art Unit 3766
28 September 2008